

**CHILEAN PIPUNCULIDAE (DIPTERA).
KEY TO GENERA, NEW RECORDS, DESCRIPTION OF A NEW SPECIES OF
EUDORYLAS ACZÉL AND A CATALOG OF SPECIES**

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ABSTRACT

Eudorylas macrocercus n. sp., from Chiloé, Island, is described and illustrated. A key to recorded genera as well as a catalog of all known Chilean species of Pipunculidae is presented.

Key words. Chile, *Eudorylas*, Pipunculidae, Taxonomy.

RESUMEN

Eudorylas macrocercus, sp. n., es descrita e ilustrada de la Isla Chiloé. Se presenta una clave para géneros y un catálogo de todas las especies de Pipunculidae conocidas de Chile.

Palabras clave: Chile, *Eudorylas*, Pipunculidae, Taxonomía.

INTRODUCTION

The family Pipunculidae was represented in Chile only by four species in Stuardo-Ortiz (1946) and Hardy (1966). The papers published by Rafael (1988a, 1988b, 1990a, 1992) increased this number to eleven species. Together with the recent paper by Ale-Rocha (1996) which described five new species in the genus *Tomosvaryella* Aczél from Chile and the results presented here, with a description of a new *Eudorylas* species plus a new record of *Chalarus* Walker we have a total of nineteen recorded species in Chile.

MATERIAL AND METHODS

The length of specimens was taken from the front of the head (without antennae) to the tip of

the terminalia in males and tip of syntergosternite VII+VIII in female specimens. The length of the wing was taken from the base to the tip.

Terminalia was studied by removing the abdomen, after which it was boiled in a 10% solution of potassium hydroxide, washed in water with acetic acid and, after examined, it was placed in a microvial with glycerin and pinned along with the specimen.

Taxonomic key was compiled for all genera recorded in Chile.

The classification adopted here follows Rafael and De Meyer (1992) and De Meyer (1994). Terminology is based on McAlpine (1981). Abbreviations used here are:

GR = geographical record(s); Hol. = holotype; Parat. = paratype(s); TD = type depositary; TL = type locality; Ref. = reference(s).

Acronyms for museums are:

BMNH - British Museum of Natural History, London, England

CAS - California Academy of Sciences, San Francisco, USA

CMNH - Carnegie Museum of Natural History,

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INPA - Instituto Nacional de Pesquisas da Amazonia, Manaus Brazil

LEP - Luis E. Peña collection, Santiago, Chile

MCZ - Museum of Comparative Zoology, Cambridge, USA

MZSP - Museu de Zoologia de São Paulo, São Paulo, Brazil

UFPR - Universidade Federal do Parana, Department of Zoology, Curitiba, Brazil.

RESULTS

Key to genera of Pipunculidae from Chile (other genera not recorded, but of probable occurrence in Chile, may be keyed through Rafael, 1996).

1. Ocellar bristles present; head hemispherical; postcranium narrow; veins M and dm-cu absent *Chalarus* Walker
1 sp.: *chilensis* Collin
- 1'. Ocellar bristles absent; head nearly spherical; posteranium swollen; wing venation complete 2
- 2(1'). Hind margin of each eye with a deep excision at middle; margins of mesonotum and scutellum with strong bristles; wing anal lobe absent *Protonephrocerus* Collin
1 sp.: *chiloensis* Collin
- 2'. Hind margin of each eye without excision; mesonotum and scutellum without strong bristles; wing anal lobe distinct 3
- 3(2'). Proepisternum with fan-like tuft of hairs; vein M2 present *Cephalosphaera* Enderlein
1 sp.: *santiagoensis* Rafael
- 3'. Proepisternum without fan-like tuft of hairs; vein M2 absent 4
- 4(3'). Pterostigma absent; third section of costa shorter or equal in length to fourth section of costa *Tomosvaryella* Aczél
8 spp.: key presented below
- 4'. Pterostigma present; third section of costa longer than fourth section of costa 5
- 5(4'). Tergite VI visible dorsally in males 6
- 5' Tergite VI not visible dorsally in males *Eudorylas* Aczél
3 spp.: key presented below
- 6(5). Apex of flagellum obtuse below; ventral ctenidia present only on mesofemora; tergites with oblique gray pruinose spot posterolaterally *Elmohardyia* Rafael
1 sp.: *denigrata* Rafael
- 6'. Apex of flagellum acuminate to subfiliform; ventral ctenidia present on profemur and mesofemur; tergite without oblique gray pruinose spot *Metadorylas* Rafael
4 spp.: key presented below

Subfamily CHALARINAE

Genus *Chalarus* Walker

Chalarus Walker, 1834:269. Type-species:

Cephalops spurius Fallén (by subsequent designation of Westwood, 1840)

CHILENSIS Collin, 1931:52; as subspecies of *spurius* Fallén. GR: Argentina (Rio Negro-TL); Brazil (Paraná, Sao Paulo); Chile (Chiloé, Island). TD: hol. male, BMNH. Ref.: Rafael (1988a).

This species has previously been recorded from Argentina and Brazil (Rafael, 1988a, 1990a). Despite the specific name it was described from Argentina, Rio Negro, and this record is the first from Chile.

Material examined: CHILE, Chiloé Island, South Chandre, 10-20.xi.1989, L.E.Peña, (1 male, LEP).

Subfamily NEPHROCERINAE

Genus *Protonephrocerus* Collin

Protonephrocerus Collin, 1931:52. Type-species: *P. chiloensis* Collin (by original designation).

CHILOENSIS Collin, 1931:52. GR: Chile (Chiloé Island-TL, Ñuble, Bio-Bio, Malleco). TD: hol. female, BMNH. Ref.: Rafael (1988b).

Subfamily PIPUNCULINAE

Tribe Cephalopsini

Genus *Cephalosphaera* Enderlein

Cephalosphaera Enderlein, 1936:129. Type-species: *Pipunculus furcatus* Egger (by monotypy)

Cephalosphaera (*Cephalosphaera*) Enderlein

SANTIAGOENSIS Rafael, 1992:645. GR: Chile (Santiago-TL). TD: hol. male, CAS; parat. male and female, CAS, INPA.

Tribe Eudorylini

Genus *Eudorylas* Aczél

Eudorylas Aczél, 1940:151. Type-species: *Pipunculus opacus* Fallén (by original designation).

MACROCERCUS Rafael, n. sp. GR: Chile (Chiloé Island). TD: hol. male, CMNH; parat. male and female, CMNH, INPA.

POSTICUS (Collin), 1931:59; *Pipunculus*. GR: Chile (Aconcagua-TL, Valparaíso, Curico, Ñuble, Llanquihue, Chiloé). TD: hol. female, BMNH. Ref.: Rafael (1995)

SCOTINUS (Collin), 1931:60; *Pipunculus*. GR: Argentina (Misiones TL, Chubut); Chile (Santiago, Curico, Ñuble, Arauco, Llanquihue, Chiloé). TD: hol. male, BMNH. Ref.: Rafael (1995)

This genus is cosmopolitan and has a wide distribution in the New World, ranging from Canada to Chile. The Mexican and Central American species were revised by Rafael (1993) and the South American species by Rafael (1995).

Key to species of *Eudorylas* from Chile.

1. Flagellum aristiform (Fig. 1); wing anal lobe absent at basal one fifth (Fig. 7); cerci extremely developed (Fig. 3) *E. macrocercus*, n. sp.
- 1'. Flagellum short acute or rounded; wing anal lobe normal; cerci normal 2
- 2(1) All femora with ventral ctenidia; abdomen predominantly shining black; vein r-m placed at basal one fourth of cell dm; tergite I without long bristles laterally *E. posticus* (Collin)
- 2' Only mesofemur with ventral ctenidia; abdomen predominantly opaque black; vein r-m placed near two-thirds of cell dm; tergite I with strong bristles laterally *E. scotinus* (Collin)

Eudorylas macrocercus Rafael, new species (Figs. 1-7)

Diagnosis: Antennae dark brown to black; flagellum aristiform; postpronotal lobe yellow; legs yellow, except coxae and base of the femora dorsally dark brown to black; wing anal lobe narrow; male cerci extremely developed and pilose.

Holotype: Frons and face silvery gray pruinose. Antennae (Fig. 1) dark brown to black with flagellum aristiform. Thorax dark brown to black, brown pruinose dorsally, gray pruinose laterally; postpronotal lobe yellow. Legs yellow, except coxae and base of the femora dorsally dark brown to black, all tibiae slightly brown medially and all fifth tarsomeres light brown.

Mesofemora with more conspicuous ventral ctenidia. Wing (Fig. 7) hyaline; pterostigma brown; third costal section one third as long as fourth, fourth costal section longer than fifth;

crossvein r-m placed near basal one third of cell dm; anal lobe narrow, absent at basal one fifth. Halteres yellow. Abdomen dark brown to black, brown pruinose with tergite I slightly gray pruinose and with yellow lateral bristles. Terminalia concolor with abdomen, except epandrium, cerci and surstyli yellow. In ventral view as in Fig. 2. Sternite VI with a median projection. Cerci extremely developed and pilose and surstyli with a dorsal protuberance (Fig. 3). Parameres and aedeagus as in Fig. 4. Ejaculatory apodeme as in Fig. 5.

Body length 4.2 mm; wing 5.8 mm.

Female: (size: 3.9 mm). Frons shining black, except near antennae gray pruinose. Face larger than frons. Terminalia (Fig. 6) with ovipositor shining yellow. Other respects as in male.

Material: CHILE, Chiloé, Isla Chiloé, Ahoni Alto, ix.1988, Luis E. Peña (hol. male, 3 parat. female, CMNH; 1 parat. male, 1 parat. female, INPA)

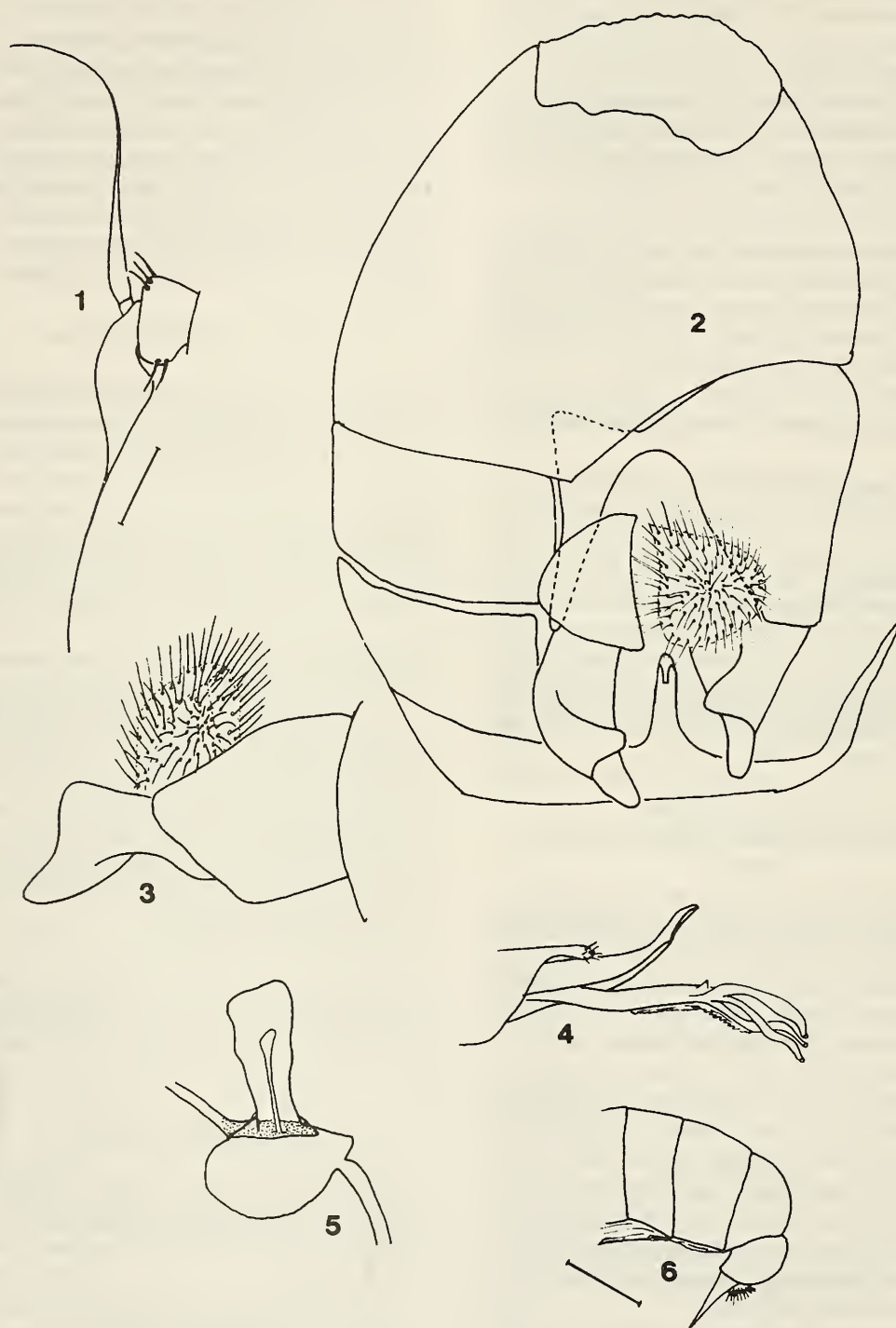
Remarks: *E. macrocercus*, n. sp. differs from Chilean species *E. posticus* (Collin) and *E. scotinus* (Collin) by the flagellum aristiform, legs predominantly yellow and anal lobe narrow, absent at basal one fifth. *E. posticus* and *scotinus* have short pointed flagellum, legs predominantly black and anal lobe normal. The new species differs from all other known neotropical species by the extremely developed cerci and the different shape of the parameres and aedeagus.

Etymology: The specific name refers to the extremely developed cerci in the male terminalia (from Greek *makros* = long, large, *kerkus* = cercus).

Genus *Elmohardyia* Rafael

Elmohardyia Rafael 1987:37. Type-species: *Pipunculus doelloi* Shannon (by original designation).

DENIGRATA Rafael, 1988c:234. GR: Chile (Ñuble-TL, Valparaíso, Maule). TD: hol. male, LEP; parat. female, CAS, INPA



Figures 1-6: *Eudorylus macrocercus*, n. sp., holotype, except figure 6, paratype. 1, antenna; 2, terminalia, bristles represented only on outer cercus; 3, epandrium, cercus and surstylus, lateral view; 4, paramere and aedeagus; 5, ejaculatory apodeme; 6, terminalia, female. All figures in the scale of 0.1 mm, except figure 6 in the scale of 0.5 mm.

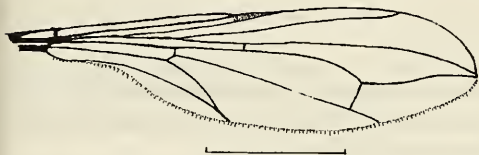


Figure 7: *Eudorylas macrocercus*, n. sp., wing, paratype male. Scale 0 = 3 mm.

Genus *Metadorylas* Rafael

Metadorylas Rafael, 1987:35, figs. 1-8. Type-species: *Pipunculus schreiteri* Shannon (by original designation)

CHILENSIS Rafael, 1990b:136. GR.: Chile (Ñuble-TL, Coquimbo, Santiago, Valparaíso, Curico, Concepción, Bio-Bio, Osorno, Llanquihue, Chiloé). TD: hol. male, LEP; parat. male and female, CAS, INPA, UFPR, LEP.

FLAVITIBIA Rafael, 1990b:143. GR: Chile (Ñuble-TL, Santiago). TD: hol. male; parat. male and female, LEP.

FUSCITIBIA Rafael, 1990b:145. GR: Ghile (Ñuble-TL, Valparaíso, Bio-Bio). TD: hol. male, LEP; parat. male and female, LEP, INPA.

SIMULATOR (Collin), 1931:56; *Pipunculus*. GR: Chile (Chiloé Island-TL, Santiago, Ñuble, Bio-Bio, Osorno), ? Bolivia (Tarija). TD: hol. female, BMNH. Ref.: Rafael (1990b).

This genus is limited to the New World. It is best known in the Neotropical Region. Rafael (1990b) present a key to all species.

Key to species of *Metadorylas* from Chile (the figures cited here refer to Rafael, 1990b)

1. Inner surstylus subquadrated, different of the outer one (Fig. 72) *M. simulator* (Collin)
- 1'. Inner surstylus pointed at apex and with lateral expansions at base 2
- 2(1'). Outer gonopod longer than parameres (Fig. 42) *M. flavitibia* Rafael
- 2'. Outer gonopod shorter than parameres 3
3. Surstyli narrower than epandrium (Fig. 21-22) *M. chilensis* Rafael
- 3(2). Surstyli as large as epandrium (Fig. 46) *M. fuscitibia* Rafael

Tribe Tomosvaryellini Genus *Tomosvaryella* Aczél

Tomosvaryella Aczél, 1939:22. Type-species: *Pipunculus sylvaticus* Meigen (by original designation)

BISSULCA Ale-Rocha, 1996:167. GR: Chile (Santiago-TL, Coquimbo). TD: hol. male, CAS; parat. males: CAS, MZSP, INPA.

CHILENSIS Ale-Rocha, 1996:167. GR: Chile (Bio-Bio-TL, Valparaíso, Concepción, Santiago, Llanquihue, Isla Chiloé, Ñuble, Arauco, Osorno). TD: hol. male, LEP; parat- male and female, CAS, INPA, LEP, MZSP, BMNH.

CURTA Ale-Rocha, 1996:170. GR: Chile (Santiago-TL, Curicó) TD: hol. male, CAS; parat. male CAS, INPA.

MEDIOCRIS (Collin), 1931:54; *Pipunculus*. GR: Chile (Llanquihue TL, Arauco, Ñuble, Bio-Bio, Malleco, Isla Chiloé); Argentina, (Tierra del Fuego). TD: hol. male, parat. female, BMNH. Ref.: Ale-Rocha (1996).

PRECTINALIS Ale-Rocha, 1996:177. GR: Chile (Santiago-TL, Magallanes, Ñuble); Argentina (Chubut). TD: hol. male, CAS; parat. male: CAS, INPA, LEP.

PRUINOSA Ale-Rocha, 1996:181. GR: Chile (Santiago-TL, Coquimbo)-TD: hol. male, CAS; parat. male, CAS, INPA.

PULCHRA Ale-Rocha, 1992:347. GR: Brazil (Amazonas-TL, Mato Grosso); Paraguay (San Pedro); Argentina (Santiago del Estero); Chile (Coquimbo, Santiago, Ñuble, Bio-Bio)- TD: hol. male, INPA; parat. male, CAS, INPA, MZSP.

SUBVIRESCENS (Loew), 1872:87; *Pipunculus*. Distr.: USA (Texas-TL), widespread in the Palaearctic, Oriental, Australian, Nearctic and Neotropical regions. Neotropical: Mexico, Belize, Nicaragua, Costa Rica, Panama, Bahamas, Jamaica, Dominica, Cuba, Porto Rico, Colombia, Peru, Chile, Brazil. TD: hol. male, MCZ (For synonymy see Ale-Rocha, 1996, with the observation that *T. albiseta* Cresson was revalidated recently by Woodley & Hilburn, 1994).

Tomosvaryella is the best represented genus in Chile with eight species. Most of them were described by Ale-Rocha (1996).

Key to species of *Tomosvaryella* from Chile
(the figures cited here refer to Ale-Rocha, 1996)

1. Syntergosternite VIII subhemispherical, symmetrical, with dorsal suture on the right side; ductuli of aedeagus smooth (Fig. 150)..... *T. subvirescens* (Loew)
- 1'. Syntergosternite VIII asymmetrical; ductuli of aedeagus with at least one or two small teeth 2
- 2(1). Crossvein r-m positioned at basal two fifth of cell dm; anal lobe narrower than cell cup. *T. mediocris* (Collin)
- 2'. Crossvein r-m positioned at or near middle of cell dm; anal lobe as largo as or larger than cell cup. 3
- 3(2"). Tergite I and tergites II-V at sides largely gray pruinose; aedeagus elongated with small teeth over entire length of one ductulus (Fig. 135) *T. pruinosa* Ale-Rocha
- 3'. Tergites not densely gray pruinose; aedeagus short ramificated 4
- 4(3'). parameres without dorsal subapical spines 5
- 4'. parameres with 1 or 2 dorsal subapical epines 6
- 5(4). Surstyli asymmetrical, the inner surstylus longer than outer one; epandrium not bristled at apex (Fig. 36) *T. curta* Ale-Rocha
- 5'. Surstyli symmetrical, distinctly elevated and bristled dorsally; epandrium bristled at apex *T. pulchra* Ale-Rocha
- 6(4). parameres with 2 dorsal spines, the distal spine three times longer than basal one (Fig. 22) *T. chilensis* Ale-Rocha
- 6'. parameres with one short dorsal spine 7
- 7(6). aedeagus with a subapical cluster of teeth over one ductulus (Fig. 106) *T. pectinalis* Ale-Rocha
- 7'. Two ductuli of aedeagus with 1 or 2 small teeth near apex (Fig. 14) *T. bisulca* Ale-Rocha

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